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EXAMINER

ALI, MOHAMMAD

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

09/845,432

**Applicant(s)**

BLAKER ET AL.

**Examiner**

Mohammad Ali

**Art Unit**

2166

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 February 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-13,37 and 40 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13,37 and 40 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Arguments***

1. After further search and a thorough examination of the present application claims 1-13, 37, and 40 remains rejected.

Applicants' arguments with respect to claims 1-13, 37, and 40 have been considered, but they are not deemed to be persuasive.

In response to applicant's arguments 101 issues, Examiner respectfully submits that 101 rejection will be sustained as explained in details office actions and see MPEP 2106.

Applicant's argue that Sharma does not teach or suggest 'generating a hash key value based on a plurality of selector values'.

In response to applicant's arguments, the Examiner respectfully submits that in particular, Sharma teaches this limitation as, generating a hashed group value that serves as an index into a memory-resident hash table that maps hashed group values into corresponding memory-resident group table entries (see col. 2, lines 64-67, Sharma). Further, the grouping function GF 124a first reads the last row of the table T1 212. As with any other row, the hash function is applied to the group identifier (dname=B30), a hashed group value is generated (HF(B30)), and the hash table is referenced at that index (HT[HF(B30)]) to see whether data for group B30 exists in the group table. In this case, there is no match in the hash table. Consequently, the grouping function GF 124a uses the same hashed group value and lookup techniques to see whether data from group B30 are being partially aggregated in the second hash

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table HT2 220. Here, even though two other rows from group B30 have been previously aggregated in the output buffer OB 222, the partially aggregated data have been previously written to the overflow file T2 214, probably to accommodate data from a new group (e.g., dname="M26"). Thus, there is no entry in the second hash table HT2 220 corresponding to the group value B30. The grouping function GF 124a responds to this set of circumstances by writing the reformatted row (dname=B30, sum.sub.-- salary=39K, count=1) to the output buffer OB 222 and setting a pointer in the indexed hash table entry (HT2[HF(B30)]) to that buffer entry (see col. 5, lines 65 to col. 6, lines 17, Sharma).

Applicant's argue that Sharma does not teach or suggest 'an entries in the database include corresponding hash values'.

In response to applicant's arguments, the Examiner respectfully submits that in particular, Sharma teaches this limitation as, a database table T1 212 and an overflow file T2 214 are provided in the secondary memory 116. Data structures employed during execution of the present grouping method are maintained in primary memory 112 and include a hash table HT 216, a group table GT 218, a second hash table HT2 220, an output buffer OB 222, and several flags, including a group table full flag GT.sub.-- FULL 224, an overflow option flag OV.sub.-- OPT 226, an output buffer full flag OB.sub.-- FULL 228, and an end of file flag EOF 230, see col. 5, lines 55-64, Sharma.

In response to the applicant's arguments "hash value of an entry in the group table is not generated by hashing" as overflow rows are partially aggregated into groupings in an output buffer, the contents of which are written to the overflow disk file

when the buffer fills up. This procedure utilizes a second memory-resident hash table that maps hashed group values into entries in the output buffer. In this procedure, when the group table is full and a database row is read having a group identifier that is not represented in the group table, the matching function compares the hashed group value to the contents of the second hash table to see whether an output buffer entry exists summarizing data corresponding to the current group identifier. If the corresponding output buffer entry exists, the aggregation procedure aggregates the new data into the appropriate fields of the buffer entry, which is formatted identically to the memory-resident group table entries, see col. 3, lines 32-47, Sharma.

In response to the applicant's arguments "a database entry to include the hash value of the entry data as a part of the entry" as once hash grouping has been selected, the next step (312) is for the input procedure 232 to read selected fields (corresponding to the selected columns from the SQL grouping/aggregation query) of a single row of the database table T1 212. The hash function HF 210 is then applied by the matching procedure 234 to the group identifier associated with the just read row, yielding a hashed group value that serves as an index into the hash table HT 216 (313). If the indexed entry of the hash table HT 216 points to an entry in the group table GT 218 summarizing selected data fields from the same group (315 - Y), the just read raw data are aggregated into that group entry (316) by the aggregation procedure 236. If the indexed entry of the hash table HT 216 does not point to such an entry in the group table GT 218 (315 - N), steps 317-324 are executed depending on the availability of space in the group table GT 218 and the

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selected overflow option, see col. 10, lines 23-39, Sharma.

Hence, Applicants' arguments do not distinguish over the claimed invention over the prior art of record.

In light of the foregoing arguments, the 102 rejections are hereby sustained.

### ***Claim Rejections - 35 USC § 101***

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The claimed 1-13, 37, and 40 invention is directed to non-statutory subject matter. the claimed invention is directed to a judicial exception to 35 U.S.C. 101 (i.e., an abstract idea, natural phenomenon, or law of nature) and is not directed to a practical application of such judicial exception (e.g., because the claim does not require any physical transformation and the invention as claimed does not produce a useful, concrete, and tangible result), see MPEP 2106.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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4. Claims 1-6, 10-13, 37, and 40 rejected under 35 U.S.C. 102(b) as being anticipated by Sharma et al. ('Sharma' hereinafter), USP, 5,511,190.

With respect to claim 1,

Sharma teaches a method of searching a database (see col. 1, lines 5-7), the method comprising:

generating a hash key value based on a plurality of selector values (generating a hashed group value that serves as an index into a memory-resident hash table that maps hashed group values into corresponding memory-resident group table entries, see col. 2, lines 64-67, Sharma);

selecting an entry in the database having an address corresponding to the hash key value, wherein entries in the database include corresponding hash values (grouping involves an input procedure reading the database table row by row. For each row, values are picked up for select columns designated in a SQL group-by statement, including a group value or identifier from the group columns, and zero or more data values from the data columns. Next, a matching procedure applies a hash function to the group identifier, generating a hashed group value that serves as an index into a memory-resident hash table that maps hashed group values into corresponding memory-resident group table entries, see col. 2, lines 63-67, Sharma);

evaluating the selected entry to determine if the entry in the database corresponds to the plurality of selector values (memory-resident hash table that maps hashed group values into entries in the output buffer, see col. 3, lines 36-38, Sharma);

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incrementing the address corresponding to the hash key value if the selected entry does not correspond to the plurality of selector values (the input database table T1 212 is read row by row, the group table entry corresponding to the new row's group identifier is located, the raw salary data accumulated into the corresponding group table entry's sum.sub.-- salary field and the count field incremented. When the end of the input table T1 212 is reached, the average salary for each group (or department) can be computed by dividing the contents of the sum.sub.-- salary field by the contents of the count field, see col. 7, lines 29-37, Fig. 6, Sharma);

wherein the selecting, the evaluating and the incrementing (see col. 10, lines 55-59, Sharma) are repeated until the hash value included in selected entry has a value which indicates that entries subsequent to the selected entry will not correspond to the plurality of selector values (if the indexed entry of the hash table HT 216 points to an entry in the group table GT 218 summarizing selected data fields from the same group (315 - Y), the just read raw data are aggregated into that group entry (316) by the aggregation procedure 236. If the indexed entry of the hash table HT 216 does not point to such an entry in the group table GT 218 (315 - N), steps 317-324 are executed depending on the availability of space in the group table GT 218 and the selected overflow option, see col. 10, lines 31-39, Sharma).

Claims 37 and 40 have the same subject matter as of claim 1 except computer-readable program code and Sharma teaches at col. 5, lines 41-42 and essentially rejected for the same reasons as discussed above.

As to claim 2,



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Sharma teaches wherein the selecting, the evaluating and the incrementing (see col. 10, lines 55-59, Sharma) are repeated until an entry corresponding to the plurality of selector values is reached or until the hash value included in the selected entry has a value which indicates that entries subsequent to the selected entry will not correspond to the plurality of selector values (see col. 10, lines 31-39 and see col. 7, lines 29-37, Sharma).

As to claim 3,

Sharma teaches wherein the selecting, the evaluating and the incrementing are repeated until the selected entry is a null entry (see col. 3, lines 10-13, Sharma).

As to claim 4,

Sharma teaches wherein the selecting, the evaluating and the incrementing (see col. 10, lines 55-59, Fig. 6, Sharma) are repeated until the selected entry has a hash value greater than the hash key value (see col. 7, lines 29-37, Sharma).

As to claim 5,

Sharma teaches providing the selected entry if the selected entry corresponds to the plurality of selector values (see col. 3, lines 36-38, Sharma); and

providing an indicator of failure of the search if the selected entry includes a hash value other than the hash key value or the selected entry has a null value (see col. 3, lines 10-13, Sharma).

As to claim 6,

Sharma teaches wherein generating a hash key value based on a plurality of selector values comprises encrypting (Fig. 1, Sharma) the selector values to provide the hash key value (see col. 2, lines 64-67, Sharma).

As to claim 10,

Sharma teaches wherein the database comprises an Internet Protocol Security (IPSec) security association database and the plurality of selector values comprise IPSec selector fields (see Figs. 1, 2, Sharma).

As to claim 11,

Sharma teaches wherein the database has a size of about four times a maximum number of supported security associations (see Figs. 1, 2, Sharma).

As to claim 12,

Sharma teaches wherein the database is contained in a circular memory and wherein incrementing the address comprises: incrementing the address to a next consecutive address if the address is less than a maximum address of the circular memory (see col. 10, lines 31-39, Sharma); and

setting the address to a first address of the circular memory if the address is equal to the maximum address of the circular memory (see col. 5, lines 33-39, Figs. 1-2, Sharma).

As to claim 13,

Sharma teaches wherein the selecting, the evaluating and the incrementing are repeated until a hash value of the selected entry is less than a hash value of a previous

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selected entry and the hash value of the selected entry is greater than the hash key value (see col. 10, lines 31-39, Fig. 6, Sharma).

***Remarks***

**Ogihira et al. (USP, 6,226,634), claimed invention including “wherein entries in the database include corresponding hash values,....”.**

***Allowable Subject Matter***

5. Claims 7-9 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 101, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims. The prior art of records does not teach or suggests wherein encrypting the selector values to provide the hash key value comprises: grouping the plurality of selector values into blocks having a predefined number of bits; padding the blocks of grouped selector values to the predefined number of bits; encrypting the padded blocks; and truncating the encrypted padded blocks to a number of bits in the hash key value to provide the hash key value; wherein encrypting the padded blocks comprises encrypting the padded blocks using Cipher-Block-Chaining encryption mode of Data Encryption Standard (DES-CBC) encrypted; wherein the database comprises an Internet Protocol Security (IPSec) security association database, the plurality of selector values comprise IPSec selector fields and the predefined number of bits comprises 64 bits.

***Conclusion***

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

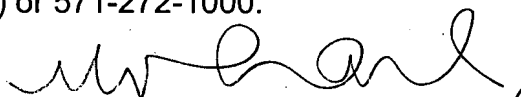
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**Contact Information**

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mohammad Ali whose telephone number is (571) 272-4105. The examiner can normally be reached on Monday-Thursday (7:30 am-6:00 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hosain T. Alam can be reached on (571) 272-3978. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Mohammad Ali  
Primary Examiner  
Art Unit 2166

MA  
May 09, 2007